68746 U.S. PTO

07/07/97

A/FWC $

67477 U.S. PTO
08/888202
07/07/97

PTO/SB/14 (11-96)
Approved for use through 6/30/99. OMB 0651-0033
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FORM FOR FILING A PATENT APPLICATION UNDER 37 CFR 1.62

DOCKET NUMBER	ANTICIPATED CLASSIFICATION OF THIS APPLICATION		PRIOR APPLICATION EXAMINER	ART UNIT
	CLASS	SUBCLASS		

Address to:
Assistant Commissioner for Patents
Box FWC
Washington, D.C. 20231

This is a Request for filing a ☐ continuation-in-part, ☐ continuation, ☐ divisional application under 37 CFR 1.62 of prior application Number ___ / _____, filed on _____ entitled _____ by the following named inventor(s):

FULL NAME OF INVENTOR	FAMILY NAME: PIMENTEL	FIRST GIVEN NAME: JULIO	SECOND GIVEN NAME: LIONEL
RESIDENCE & CITIZENSHIP	CITY: BUFORD	STATE OR FOREIGN COUNTRY: GEORGIA	COUNTRY OF CITIZENSHIP: PERU
POST OFFICE ADDRESS	POST OFFICE ADDRESS: 3206 WINDGATE DR.	CITY: BUFORD	STATE & ZIP CODE / COUNTRY: GA 30519
FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE / COUNTRY
FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE / COUNTRY

☐ Additional inventors are being named on separately numbered sheet(s) attached hereto.

The above identified prior application in which no payment of the issue fee, abandonment of, or termination of proceedings has occurred, is hereby expressly abandoned under 37 CFR 1.62(g) as of the filing date of this new application. Please use all the contents of the prior application file wrapper, including the drawings, as the basic papers for the new application. (No new specification is required, 37 CFR 1.62(e).) (Note: 37 CFR 1.60 may be used for continuation or divisional applications where the prior application is not to be abandoned.)

1. ☐ Enter the unentered amendment previously filed on _____ under 37 CFR 1.116 in the prior application.
2. ☐ A preliminary amendment is enclosed.
3. ☐ This application is being filed by less than all the inventors named in the application. The Commissioner is requested under 37 CFR 1.62(a) to delete the names of the following person or persons from the prior application who are not inventors of the invention being claimed in this application:

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS (37 CFR 1.16(c))	25 - 20 =	5	x $ 11 =	$ 55
	INDEPENDENT CLAIMS (37 CFR 1.16(b))	- 3 =		x $ _____ =	
	MULTIPLE DEPENDENT CLAIMS (if applicable) (37 CFR 1.16(d))			+ $ _____ =	
			BASIC FEE (37 CFR 1.16(a))		+ 385
			Total of above Calculations =		440
	Reduction by 50% for filing by small entity (Note 37 CFR 1.9, 1.27, 1.28).				
			TOTAL =		440

Burden Hour Statement: This form is estimated to take 0.5 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box FWC, Washington, DC 20231.

PTO/SB/14 (11-96)
Approved for use through 6/30/99. OMB 0651-0033
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

(REQUEST FORM FOR FILING A PATENT APPLICATION UNDER 37 CFR 1.62, Page 2)

4. ☒ A verified statement to establish small entity status under 37 CFR 1.9 and 1.27
   ☒ is enclosed.
   ☐ was filed in the prior application and such status is still proper and desired (37 CFR 1.28(a)).
5. ☐ The Commissioner is hereby authorized to charge fees under 37 CFR 1.16 and 1.17 which may be required, or credit any overpayment to Deposit Account No. _____ . (A duplicate copy of this form is enclosed.)
6. ☒ A check in the amount of $ 440 is enclosed.
7. ☐ A new oath or declaration in compliance with 37 CFR 1.63 is included since this application is a continuation-in-part which discloses and claims additional matter.
8. ☐ Amend the specification by inserting before the first line the sentence:

   This application is a ☐ continuation-in-part, ☐ continuation, ☐ division, of application number ____ / _____, filed _____, now abandoned.

9. ☐ Priority of foreign application number _____, filed on _____ in (country) _____ is claimed under 35 U.S.C. 119(a) - (d).
10. ☐ The prior application is assigned of record to _____
11. ☐ The power of attorney in the prior application is to: (name & address) _____
12. ☐ Also enclosed

Address all future correspondence to: (May only be completed by applicant, or attorney or agent of record)

☐ Customer Number _____ → *Place Customer Number Bar Code Label here*
Type Customer Number here

OR

☒ Firm or Individual Name JULIO L. PIMENTEL

Address 3206 WINDGATE DR.

Address

City BUFORD State GA ZIP 30519

Country

Telephone (770) 945-6678 Fax (770) 945-9762

It is understood that secrecy under 35 U.S.C. 122 is hereby waived to the extent that if information or access is available to any one of the applications in the file wrapper of a 37 CFR 1.62 application, be it either this application or a prior application in the same file wrapper, the Patent and Trademark Office may provide similar information or access to all the other applications in the same file wrapper.

7-2-97
Date

Signature

JULIO L. PIMENTEL
Typed or printed name

☒ Inventor(s)
☐ Assignee of complete interest. Certification under 37 CFR 3.73(b) is enclosed.
☐ Attorney or agent of record
☐ Filed under 37 CFR 1.34(a)
Registration number if acting under 37 CFR 1.34(a)._____.

PTO/SB/17 (10-96)
Approved for use through 9/30/98. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

FEE TRANSMITTAL

Complete if Known	
Application Number	
Filing Date	
First Named Inventor	JULIO L. PIMENTEL
Group Art Unit	
Examiner Name	
Attorney Docket Number	

TOTAL AMOUNT OF PAYMENT ($) 440.-

08/888202 67477 U.S. PTO 07/07/97

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number
Deposit Account Name

☐ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17
☐ Charge the Issue Fee Set in 37 CFR 1.18 at the Mailing of the Notice of Allowance, 37 CFR 1.311(b)

2. ☒ Payment Enclosed:
☒ Check ☐ Money Order ☐ Other

FEE CALCULATION (fees effective 10/01/96)

1. FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	770	201	385	Utility filing fee	385
106	320	206	160	Design filing fee	
107	530	207	265	Plant filing fee	
108	770	208	385	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($) 385

2. CLAIMS

		Extra		Fee from below		Fee Paid
Total Claims	25 -20 =	5	X	11	=	55
Independent Claims	- 3 =		X		=	
Multiple Dependent Claims			X		=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	22	203	11	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	260	204	130	Multiple dependent claim
109	80	209	40	Reissue independent claims over original patent
110	22	210	11	Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 440

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,460	147	2,460	For filing a request for reexamination	
112	900*	112	900*	Requesting publication of SIR prior to Examiner action	
113	1,790*	113	1,790*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for response within first month	
116	390	216	195	Extension for response within second month	
117	930	217	465	Extension for response within third month	
118	1,470	218	735	Extension for response within fourth month	
119	300	219	150	Notice of Appeal	
120	300	220	150	Filing a brief in support of an appeal	
121	260	221	130	Request for oral hearing	
138	1,470	138	1,470	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive unavoidably abandoned application	
141	1,290	241	645	Petition to revive unintentionally abandoned application	
142	1,290	242	645	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	650	244	325	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	230	126	230	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	770	246	385	Filing a submission after final rejection (37 CFR 1.129(a))	
149	770	249	385	For each additional invention to be examined (37 CFR 1.129(b))	
				Other fee (specify) _____	
				Other fee (specify) _____	

SUBTOTAL (3) ($)

* Reduced by Basic Filing Fee Paid

SUBMITTED BY

				Complete (if applicable)	
Typed or Printed Name	JULIO L. PIMENTEL			Reg. Number	
Signature		Date	7-2-97	Deposit Account User ID	

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

JUL 7 1997 PATENT & TRADEMARK

PTO/SB/09 (10-96)
Approved for use through 10/31/99. OMB 0651-0031
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR

Docket Number (Optional)

Applicant or Patentee: Julio L. Pimentel

Application or Patent No.: _____

Filed or Issued: _____

Title: Decreased fat absorption with an anti-Lipase antibody

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☐ the specification filed herewith with title as listed above.
- ☒ the application identified above.
- ☐ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
- ☐ Each such person, concern, or organization is listed below.

Separate verified statements are required from each named person, concern, or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Julio L. Pimentel		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Signature of inventor	Signature of inventor	Signature of inventor
7-2-97		
Date	Date	Date

Burden Hour Statement: This form is estimated to take 0.3 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

MAIL ROOM
JUL 7 1997
PAT. & TRADEMARK

67477 U.S. PTO
08/888202
07/07/97

TITLE OF THE INVENTION

DECREASED FAT ABSORPTION WITH AN ANTI-LIPASE ANTIBODY

BACKGROUND OF THE INVENTION

Field of the invention

A food additive that decrease fat absorption in mammals

Discussion of the background

Our sedentary life including the decreased physical activity and increased food intake have made us prone to be overweight. The above has brought as consequence that almost 40-50 % of the USA population is 20% above their desirable weight. The advance in the science of food and nutrition not only has made us wiser about the functions of all nutrients but also by applying that knowledge we have concentrated food in smaller portions by which the satisfaction of filling is decreased. Even if the amount of food intake remains the same, we will have an excess caloric intake due to the high energy concentration of such type of food (Bell, et al 1997). Currently, the weight loss related market is full of diet

pills that reduce appetite by suppressing brain hormones, drugs that suppress the absorption of nutrients, pills that supposedly have ergogenics effect, pills that increase food passage rate and other fad diets. Mostly all of these drugs have secondary effects like depression, anxiety, addiction and others.

A new approach for the reduction of calories in food is by the use of fat substitutes (Gershoff, et al 1995). Each gram of fat provides 9 calories as compared to 4 calories per gram of carbohydrate and protein. Fat substitutes mainly those made of long carbohydrate chains are use for the elaboration of prepared food with the purpose of maintaining fat properties in the prepared food but decreasing calories. A new fat substitute, Olestra, which is made of long chain fatty acids that are too big for digestive enzymes (lipase) to breakdown, therefore that type of fat is not absorbed. It has been observed that the consumption of Olestra has resulted in decreased absorption of fat soluble and the presence of fat in the feces. A long term study (12 weeks) where 1/3 of the dietary fat was replaced with olestra, female subjects lost weight and did not compensate for the reduced calories and fat intake (Roy, et al, 1997).

In the animal industry, researchers have been working on the reduction of fat accumulation in animals since this characteristic first, has a negative effect on profits and second, consumers want less visible fat in order to decrease the health risk.

Fat accumulation in animals has been reduced by passively administered antibodies against adipocyte plasma membrane in rats, pigs, rabbits and lambs. Immunity against growth hormone has also decreased abdominal fat in chickens (Brodie and Hu, 1996; Moloney, 1995; Flint, 1992).

Lipase, an enzyme produced by the pancreas, hydrolyzes triacylglicerides into free fatty acids and glycerol. This is a crucial step in breaking down ingested fat in the gastro-intestinal tract. Lipase is more active in the duodenum (small intestine) where broken down fat with the aid of bile salts form micelles and then are absorbed by the intestinal mucosa.

Therefore, by inhibiting lipase the ingested fat will not be absorbed and the energy supplied by fat and the fat itself will be excreted.

SUMMARY OF THE INVENTION

A method for the inhibition of fat absorption in mammals.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention relates to a method for decreasing fat absorption by orally feeding chicken antibodies against lipase. The preferred antigen for obtaining the antibodies is a swine pancreatic extract that contains lipase. This antigen is commercially produced by Sigma Chemical Co. Lipase is a conserve molecule with similar structure between animal and plant species, therefore an antibody against swine lipase will cross-react with other species' lipase. We have found that by feeding anti-lipase antibodies to mice and rats will result in either decreased body weight or reduced feed efficiency. The antibody extract can either be fed in water suspension, included in feed as dry powder and/or encapsulated in liposomes.

Previous research on the effectiveness of chicken antibodies has been reported; i.e. the prevention of bacterial infection in swine, calf and dairy cows (Yokoyama et al, 1993; Erhard et al 1993; Coleman, 1995). These

researches have also demonstrated the presence of intact avian antibodies in the gastro-intestinal tract of the animals.

Although chickens antibodies are known to protect against bacterial infections, no antibody has been reported to decreased fat absorption.

It will be apparent for those skilled in the art that the aforementioned objects and other advantages may be further achieved by the practice of the present invention.

Example 1

This example illustrate the preparation of the specific antibody against lipase. 17-week old hens were injected with 2.5 mg of lipase (Sigma Chemical Co.). The inoculum was prepared by dissolving the enzyme in 0.2 ml phosphate buffered saline (PBS, pH 7.3) and 0.2 ml complete Freund's adjuvant. The antigen preparation was injected into two sites 0.2 ml in each (right and left) pectoralis muscle. A total of 0.4 ml of antigen preparation per hen was administered. A second injection was administered 5-6 weeks following the initial injection (at about 50% egg hen production). In the second antigen preparation, incomplete Freund's adjuvant was used instead of complete Freund's adjuvant. Hens were re-

injected with the antigen preparation every two months or when the antibody titer was determined to be low. Antibody titer was determined by ELISA. Hens had free access to fed and water and they were maintained in an isolated room in order to minimized outside contamination.

Example 2

Antibody was purified as follows: One volume of egg yolk of example 1 was mixed with 9 volumes of distilled water and left to sit overnight at 4 °C. Then the aqueous portion was centrifuged at 4000 rpm for 10 minutes and filtered through a cheesecloth in order to remove any excess fat. The aqueous portion contains all the protein present in the egg yolk which includes all the antibodies (IgY). The liquid was frozen and then was freeze dried. The antibody activity was determine by ELISA.

Example 3

Antibody against lipase was determined as follows:

1.- ELISA plates were coated with 100 ul lipase preparation (50 ug/ml) in carbonate buffer. The plates were incubated at 4 °C overnight prior to blocking with 1.5% bovine serum albumin for 4 hours at room temperature.

2.- 100 ul of a 0.5 mg protein/ml antibody extract was added to each well and the plates incubated at room temperature for 1 hour.

3.- Plates were washed with PBS-tween solution. 100 ul of rabbit anti-chicken IgG conjugated to horseradish peroxidase was added to each well. The plates were incubated at room temperature for 1 hour.

4.- Plates were washed with PBS-tween and 100 ul of TMB substrate was added to each well and incubated for 15 minutes.

5.- The reaction was stopped with 100 ul of 2 M sulfuric acid.

6.- Plates were read at 455 nm in an ELISA plate reader.

7.- Titer was determine as the inverse of the dilution at which O.D. of the immunized egg was similar to the un-immunized control (O.D. < 0.100).

Example 4

This study illustrates the in vitro inhibition of lipase by the chicken anti-lipase antibody. The effectiveness of the antibody was verified by using a test specific for the determination of lipase in serum (Sigma Chemical Co). We modified this test by adding a known amount of enzyme

(lipase) and antibody to a certain volume of phosphate buffered saline. The resulting activity was expressed as Sigma-Tietz units/ml, which is equal to the ml of 0.05 N NaOH required to neutralize the fatty acid formed in the reaction. In a preliminary study we found the following:

Lipase (mg)	anti-lipase (protein extract) (mg)	Lipase Activity (U)	% decreased activity
2.0	0	17.3	
2.0	9.0	18.8	0
1.0	0	14.0	
1.0	9.0	12.5	11
0.5	0	10.4	
0.5	9.0	9.8	6
0.25	0	8.1	
0.25	9.0	6.7	17

In a second test; higher amount of antibody extract was used. The results are as follows:

Lipase (mg)	Anti-lipase Protein Extract (mg)	Lipase Activity (U)	% decreased activity
2.0	0	18.7	
2.0	37	14.0	25
1.0	0	13.5	
1.0	37	6.9	49

Example 5

This study illustrates the effect of anti-lipase antibody in mice. Two groups of 5 2-month old mice (25-34 gr each) were given 5 mg of antibody (protein extract) per ml of water. The antibody was mixed with water on a daily basis. Mice were fed the same amount of feed in both groups (approx. 5 gr/mice/day). The length of the experiment was 58 days. The results are as follows

	total* initial body weight (gr)	total final body weight (gr)	difference in body weight (gr)	total feed intake (gr)	gr of feed needed to gain 1 gr of body weight
control	157	199	42	1039	24.74
anti-lipase	156	187	31	1039	33.52

* Sum of 5 mice/trt

Example 6

This study illustrate the effect of anti-lipase when fed at lower levels than in example 5. Two groups of 5 5-month old mice (32-35 gr each) were given 1 mg of antibody (protein extract) per ml of water for the first 7 days then it was increased to 2 mg/ml of water. Mice in both groups were fed the same amount of feed for 35 days. The results were as follows.

	Total initial body weight (gr)	**Total final body weight (gr)**	**difference in body weight**	**total feed intake (gr)**	**gr of feed needed to gain 1 gr of body weight**
control	182	204	22	787.4	35.79
anti-lipase	181	185	4	788.5	197.13

Example 7

This study demonstrate the encapsulation of anti-lipase antibodies by liposomes. This liposome preparation was based on the procedure by Shimizu et al (1993). Final liposome suspension was frozen and later freeze dried. A known amount

of freeze dried liposome was mixed with rat diet, and fed daily for the length of the study.

Example 8

This study illustrate the effect of anti-lipase antibodies in rats. Twelve retired breeder Sprague Dawley rats (Harlan, Wisconsin) were individually caged and supplied with free access to water. They were fed a rabbit chow which was supplemented with corn oil in order increase fat content to 30%. Feed intake was monitored for 1 week in order to determine the amount of feed needed to maintain their initial body weight. Rats were divided in two groups one fed the high fat diet and the other group was fed the same diet with freeze dried liposome containing anti-lipase antibody extract. The treated diet contained 750 mg antibody/kg of diet. The results after 1 week of treatment are as follows:

	Initial body weight (gr)*	**One week feed intake (gr)**	**Final body weight (gr)**	**grams of feed needed to gain 1 gr of body weight**
control	316	132.3	327	12.0
antibody	319	129.4	326	18.5

* average of 6 rats.

Example 9

Since it was observed that rats gained weight in example 8, the same rats were used but this time feed was restricted. The results are as follows:

	initial body weight (gr)	Final body weight (gr)	difference in body weight	feed intake (gr)
control	327	319	-8	102
antibody	326	317	-9	101

Example 10

This study demonstrate the effect of the anti-lipase when fed to rats at maintenance feed intake. The results are as follows:

	initial body weight (gr)	One week body weight (gr)	difference in body weight	One week feed intake (gr)	gr of feed needed to gain 1 gr of body weight
control	325	332	7	112	16
antibody	324	325	1	114	114

It will be apparent to those skilled in the art that a number of modifications and variations may be made without departing from the scope of the present invention as set forth in the appended claims.

REFERENCES

1.- Bell, E. A.; V. A. Castellanos; C. L. Pelkman; M. L. Thorwart and B. J. Rolls (1997). The influence of energy density on satiation. The Faseb Journal (Abstracts) 11:A358.

2.- Brodie A. and C. Y. Hu, (199) "Fat reduction through the use of passive immunity" in Biology of fat in meat animal.

3.- Coleman, M. (1996). Oral administration of chicken yolk immunoglobulins to lower somatic cell count in the milk of lactating ruminants. USA patent # 5,585,098.

4.- Erhard, M.H., J. Kellner, J. Eichelberger and U. Losch (1993). New aspects in oral immunoprophylaxis for the prevention of infectious diarrhea newborn calves-a field study with specific egg antibodies. Berl. Munch. Tierarztl. Wschr.106:383-387.

5.- Flint, David J. (1992) Immunological manipulation of adiposity. Proceedings of the Nutrition Society 51: 433-439.

6.- Gershoff, S. N. (1995). Nutrition evaluation of dietary fat substitutes. Nutrition Reviews 53:305-313.

7.- Moloney, A. P. (1995) Immunomodulation of fat deposition. Livestock Production science 42: 239-245.

8.- Roy, H.; J. Lovejoy; M. Windhauser and G. Bray (1997). Metabolic effects of fat substitution with olestra. The Faseb Journal (Abstracts) 11:A358.

10.- Shimizu, M.; Y. Miwa; K. Hashimoto and A. Goto (1993) Encapsulation of Chicken Yolk Immunoglobulin G (IgY) by liposomes. Biosci. Biotech. Biochem 57: 1445-1449.

11.- Yokoyama, H., R. Peralta, S. Serdo, Y. Ikemori (1993). Detection of passage and absorption of chicken egg yolk immunoglobins in the gastrointestinal tract of pigs by the use of enzyme-linked immunosorbent assay and fluorescent antibody testing. Am. J. Vet. Res. JY:867-872.

What is claimed is :

1.- A method for decreasing fat absorption in mammals and avian by feeding an antibody that binds lipase.

2.- A method of claim 1 wherein lipase is any enzyme that is needed for the hydrolysis of fat in order for it to be absorbed by the gastro-intestinal mucosa.

3.- A method of claim 1 wherein the antibody binds to lipase therefore inhibiting its activity in the gastro intestinal tract.

4.- A method of claim 1 wherein lipase is of mammal, avian or plant origin.

5.- A method of claim 4 wherein mammal is such as human, primates, monogastrics and ruminants.

6.- A method of claim 4 wherein avian is such as chicken, turkey, goose, duck, quail, pheasant, pigeon.

7.- A method of claim 4 wherein plants include bacteria, mold and yeast.

8.- A method of claim 1 wherein antibody was produced in avian eggs.

9.- A method of claim 1 wherein the antibody can also be produced in other commercially or laboratory antibody-

producing animal including monoclonal, plant and bacteria produced antibodies.

10.- A method of claim 8 wherein avian compromise chicken, duck, goose, turkey, pheasant, quail, pigeon.

11.- A method of claim 8 wherein the antibodies are obtained from unfractionated whole eggs.

12.- A method of claim 8 wherein the antibodies are obtained from the yolk of an egg without fractionation thereof.

13.- A method of claim 8 wherein the antibodies are obtained by fractionating the egg yolk resulting in a protein concentrate or pure IgY (chicken immunoglobulin).

14.- A method of claim 1 wherein antibody produced as claim 8-13 is kept as it was obtained or is further processed in order to freeze dry, spray dry or encapsulated.

15.- A method of claim 14 wherein encapsulation is such process that protect the antibody against changes that inactivate or disrupt the effectiveness of the antibody.

16.- A method of claim 14 wherein encapsulation methods are liposomes, protein coating, carbohydrate coating, other chemical processes that will coat the antibody.

17.- A method of claim 1 wherein the antibody or the antibody containing material is orally fed.

18.- A method of claim 17 wherein the orally fed antibody or the antibody containing material is fed by itself as powder form, liquid form, compressed tablet or other type of pill/tablet like material.

19.- A method of claim 18 wherein the powder or the liquid antibody or the antibody containing material are fed as part of a processed or prepared food.

20.- A method of claim 19 wherein processed or prepared food is any food were the antibody or the antibody containing material in powder or liquid form have been included as part of the formulation or recipe.

21.- A method of claim 20 wherein processed or prepared food is any food for human or animal consumption which include ready to eat, ready to mix, concentrate, additives, refrigerated and frozen food.

22.- A method of claim 1 wherein decreased fat absorption is due to the decreased lipase activity, therefore fat is excreted and not absorbed in the gastro-intestinal tract.

23.- A method of transferring gastro-intestinal enzymes antibodies in animals and humans to other animals or humans in order to decrease absorption of nutrients such as protein, carbohydrates and lipids.

24.- A method of claim 23 wherein said gastro-intestinal tract enzymes is selected from amylase, trypsin, chymotrypsin, protease and other enzymes required for the absorption of nutrients.

25.- A method of transferring antibodies from an animal or human, to other animals or humans in order to modify a biochemical process comprising:

administering to said animal or human an antibody containing substance wherein said substance is derived from a producer animal or human wherein said producer animal or human has been immunized with the antigen wherein said antigen regulate a biochemical process in the gastro-intestinal tract.

ABSTRACT OF THE DISCLOSURE

A method for the decrease of fat absorption in any animal, wherein the animal is fed an antibody produced against lipase, an enzyme which is required for fat absorption.

Approval of OMB not required

FORM PTO-1209
(Rev. 8-91)

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

In the United States Patent and Trademark Office

OATH OR AFFIRMATION

I, Julio L. Pimentel, Ph.D.
DO SOLEMNLY SWEAR THAT IF ADMITTED TO PRACTICE BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE:

I will observe the laws and rules of practice of the United States Patent and Trademark Office.

I will maintain the respect due to the United States Patent and Trademark Office and the officials thereof.

I will not counsel or maintain any application or proceeding which shall appear to me to be unjust, nor will I take any action except such as I believe to be honestly debatable under the law.

I will employ for the purpose of maintaining the causes confided to me such means only as are consistent with truth and honor and will never employ political influence nor seek to mislead the officials of the Office by any artifice or false statements of fact or law.

I will maintain in confidence and preserve inviolate the secrets of my client and will accept no compensation in connection with his or her business except from him or her with his or her knowledge or approval.

I will abstain from all offensive personality and advance no fact prejudicial to the honor or reputation of a party or witness unless required by justice of the cause with which I am charged.

I will not delay any man's cause for lucre or malice.

Signature of Applicant

Subscribed and sworn to, or affirmed before me this 1 *day of* JULY, *19* 97

JAY O. SUDDERTH
COM. EXP.
NOTARY
PUBLIC
11-20-99
HART COUNTY, GEORGIA

Signature of Notary Public